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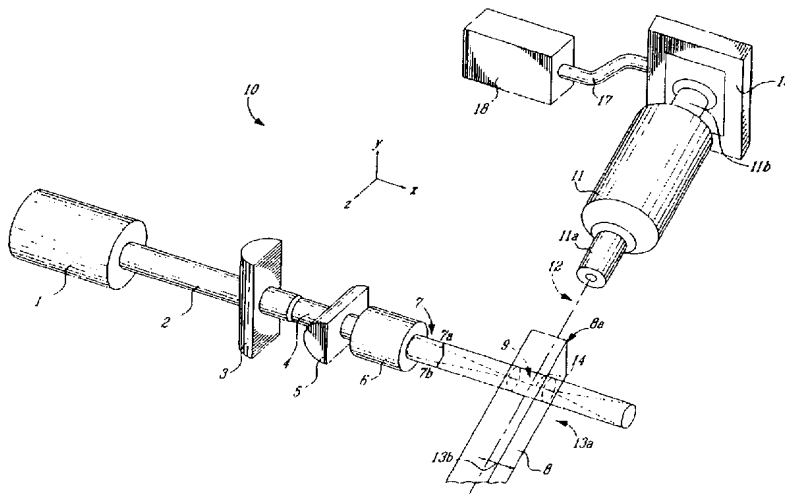
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ning of each regular issue of the PCT Gazette.

(54) Title: LIGHT PROFILE MICROSCOPY APPARATUS AND METHOD



(57) Abstract: An apparatus and method allowing an optimized illumination in a light profile microscope by excitation of a sample with an elliptically collimated beam. The beam, which is typically supplied by a laser, is collimated with unequal beam waist radii (and Rayleigh ranges) along major and minor axes orthogonal to a propagation direction, and approximates a plane sheet of illumination. The plane sheet of illumination is aligned with a thinnest width dimension thereof along the optic axis of the microscope objective, and with a center thereof at the object plane of the objective. Excitation light in a test sample is thereby confined to within a narrow thickness of the object plane of the objective lens, which minimizes out-of-focus light in the image. The major axis width of the plane illumination sheet is typically a factor of ten or more greater than the minimum width, allowing a large area of the test sample to be illuminated and imaged. This excitation arrangement optically emulates the operation of micro-toming a thin cross section of a material for analysis, and provides optimum resolution and field in a light profile microscope.